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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,072	03/25/2004	Steven Joel Bullied	EH-11132	6990
30188	7590	12/15/2005	EXAMINER	
PRATT & WHITNEY 400 MAIN STREET MAIL STOP: 132-13 EAST HARTFORD, CT 06108			LIN, KUANG Y	
			ART UNIT	PAPER NUMBER
			1725	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/809,072

Applicant(s)

BULLIED ET AL.

Examiner

Kuang Y. Lin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 15, 17-30 and 33-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 15, 17-30 and 33-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-12, 15, 17-30 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Monte et al. (US 5,062,468 or 5,062,469) or Jeyarajan et al. (US 4,940,073) and further in view of Burd et al.

Each of the primary references substantially shows the invention as claimed except that they do not show the configuration of the grain selector is different from that of claimed. However, Burd et al. show to provide a grain selector with a helix configuration. Apparently, the more turns of the grain selector the better it will be for selecting the designated crystal orientation. It would have been

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obvious to use the multiple turn of grain selector in the investment mold of the primary references for better selecting the designated crystal orientation shall the single turn of grain selector of the primary references is found to be inadequate.

4. Claims 1-12, 15, 17-30 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,180,119 to Burd et al. and further in view of either Monte et al. (US 5,062,468 or 5,062,469) or Jeyarajan et al. (US 4,940,073).

Burd et al. substantially show the invention as claimed except that they do not provide a single seed crystal for growing single crystal article. However, each of the secondary references teaches to use both a single crystal seed and a non-linear tubular grain selector in an investment mold to ensure that a predetermined crystal structure is obtained in the final cast component. It would have been obvious to further provide the system of Burd et al. with a single crystal seed in the starter cavity for growing single crystal components in view of the secondary references. It would have been obvious to obtain the optimal structural parameters through routine experimentation.

5. Claims 1-12, 15, 17-30 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giamei et al. (US 4,475,582) and further in view of either Monte et al. (US 5,062,468 or 5,062,469) or Jeyarajan et al. (US 4,940,073) or Burd et al. (4,180,119).

Giamei et al. substantially show the invention as claimed except the support. However, each of the secondary references shows to provide a support so as to assume the load imposed on the crystal selector. It would have been obvious to

provide Giamei et al. with the support of the secondary references in view of the advantage. It would have been obvious to obtain the optimal structural parameters through routine experimentation.

6. Applicant's arguments filed Nov. 23, 2005 have been fully considered but they are not persuasive.

a. Applicant's main argument is in that any of Monte I, Monte II and Jeyarajan does not show the use of grain selector comprises a non-linear tubular structure comprising at least one of: a helix, a three-dimensional bend, a staircase, and a zigzag. However, whether the configuration of the grain selector is in a two-dimensional bend or a three-dimensional bend is deemed to be obvious to those of ordinary skill in the casting art since it is a common knowledge that the more turns in the grain selector the better it will be for selecting the designated grain orientation. Further, as set forth in section [0011] of the instant application that a grain selector with either two-dimensional bend or a three-dimensional bend or other configuration can be used for single crystal growth. Thus, it is a self evidence that a grain selector with either two-dimensional bend or a three-dimensional bend is deemed to be nothing more than an obvious matter of design choice to those of ordinary skill the casting art.

b. Although Monte I, Monte II and Jeyarajan do not show the use of grain selector with three dimensional bend, Burd et al. do show that feature to be conventional. Further, in Monte I and Monte II, respectively, the paragraph before "SUMMARY OF THE INVENTION", it clearly states that it is known in the

art to use a helical or "pigtail" type crystal selector in combination with a seed crystal. Thus, the claimed invention is deemed to be obvious in view of the prior art teaching as a whole.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuang Y. Lin whose telephone number is 571-272-1179. The examiner can normally be reached on Monday-Friday, 10:00-6:30,.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas X. Dunn can be reached on 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Kuang Y. Lin', with a stylized, elongated horizontal stroke at the end.

Kuang Y. Lin
Primary Examiner
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12-09-05